BEFORE THE ARIZONA CORPORATION COMMISSION

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Chairman
JIM IRVIN
Commissioner
MARC SPITZER
Commissioner

IN THE MATTER OF THE GENERIC INVESTIGATION INTO U S WEST COMMUNICATIONS, INC.'S COMPLIANCE WITH CERTAIN WHOLESALE PRICING REQUIREMENTS FOR UNBUNDLED NETWORK ELEMENTS AND RESALE DISCOUNTS.	DOCKET NO. T-00000A-00-0194 PHASE II

QWEST CORPORATION'S RESPONSE TO OTHER PARTIES' EXCEPTIONS

Qwest Corporation respectfully submits this response to the exceptions filed by Commission Staff, AT&T and XO (collectively, "AT&T"), WorldCom, and Cox to the Recommended Opinion and Order ("Recommendation" or "R.O.O.") of the Administrative Law Judges.

SUMMARY

As the FCC has explained, "total element long-run incremental cost" ("TELRIC") asks what it would cost to replace Qwest's network today with the most efficient technology that is reasonably available now, taking into account real-world constraints external to the network. *See* Qwest Exc. 10-11, 33-34. In its exceptions, Qwest focuses on several basic respects in which the ALJ recommendation violates that standard en route to proposing (1) a noncompensatory loop rate well below any other in Qwest's region and (2) non-recurring charges that inexplicably approach zero for labor-intensive network provisioning tasks. In its own exceptions, AT&T criticizes the ALJs for failing

to commit several additional input-related errors that would push the loop rate down still further. And AT&T also contends that Qwest should recover essentially no non-recurring charges whatsoever for sending technicians to the frame and the field to perform the complex, time-consuming tasks necessary for coordinated loop installations ("hot cuts"), even when a CLEC orders line testing. As discussed in Sections II and III below, AT&T's positions on these and related issues are untenable.

Turning to issues that the ALJs failed to discuss, AT&T further seeks below-cost rates for various high-capacity circuits. With respect to circuits used for direct trunked transport, AT&T proposes selective abandonment of the very cost model, HAI, that it successfully championed in this proceeding, apparently because the transport rates produced by that model fall within, rather than sharply below, the zone of reasonableness established in other states. As discussed in Section I of this brief, the Commission should apply the HAI model to direct trunked transport, but even if it uses Qwest's alternative cost model ("ICM"), it should adopt that model without the irrational adjustments that AT&T proposes here. Those adjustments lack any foundation, and, if adopted, they would produce transport rates radically below the norm within Qwest's region and among the states for which section 271 authorization has been granted. The Commission should similarly reject AT&T's related proposals for driving the rates for high-capacity loops down far below forward-looking cost.

Finally, WorldCom and Staff contend that the ALJs' recommendations for substantial reductions in collocation-related charges do not go far enough, and they propose significant further reductions for a variety of such charges. As discussed in

Section IV, those proposals are fundamentally flawed on both factual and methodological levels.

This brief is not intended as a comprehensive response to the other parties' exceptions, and Qwest respectfully refers the Commission to the arguments set forth in its post-hearing briefs and exceptions. In this brief, Qwest focuses only on several points in the other parties' exceptions that warrant a more specific response.

I. The Commission Should Adopt The HAI Model For High-Capacity Circuits Or, At A Minimum, Should Adopt The ICM Without AT&T's Proposed Adjustments

"High capacity" circuits, such as DS1s and DS3s, include direct trunked transport, which link different wire centers (switch locations) within Qwest's network; entrance facilities, which link Qwest wire centers with CLEC wire centers; and high capacity loops, which link customers with high traffic volumes to a Qwest wire center. Unlike high-capacity loops or entrance facilities, interoffice transport circuits are typically provided to CLECs not as self-contained physical facilities in their own right, but as channels within larger transmission pipes. Because of the greater economies of scale of the interoffice facilities, the cost of these circuits tends to be lower than the costs of loops or entrance facilities of equivalent capacity levels. In particular, a DS1 (or DS3) used as an entrance facility costs more than a DS1 (or DS3) used as an interoffice transport facility, because the greater overall traffic volumes between ILEC wire centers normally justify placing the CLEC's interoffice circuit within a fatter pipe than the one deployed between a Qwest wire center and a CLEC wire center. For similar reasons, a DS1 or DS3 used as a high-capacity loop also costs more than a circuit of comparable capacity used as an interoffice transport facility.

As discussed below, the Commission should reject AT&T's efforts to limit application of the HAI model only to rate elements (such as analog loops) for which the model produces low numbers that happen to benefit AT&T. And, at all events, the Commission should reject AT&T's apples-and-oranges proposal to take input adjustments applicable only to the HAI model and try to insert them into Qwest's *alternative*, differently structured cost model. The following discussion responds to specific points made in AT&T's exceptions and is not intended to be comprehensive; a fuller analysis of pricing for transport and high-capacity loops appears in Qwest's post-hearing briefs and in the testimony cited in those briefs.

A. Direct trunked transport and entrance facilities.

In their recommendation, the ALJs adopted the HAI model because, in their view, it "provides the most appropriate measure of determining TELRIC-compliant, forward-looking costs and prices" not just for one element (regular analog loops), but "for UNEs" generally, to the extent that it addresses them. *See* R.O.O. 10. Although Qwest has asked the Commission to apply the HAI model properly, it has not challenged the ALJs' basic decision to adopt that model "for UNEs," including regular loops, high capacity loops, and high capacity circuits used for interoffice transport and entrance facilities.[1]

Ironically, the only party in this proceeding that does challenge the use of the HAI model "for UNEs" is AT&T, the model's champion and sponsor. *See* AT&T Exc. 12. Of course, AT&T does not challenge the application of the HAI model to elements for

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[1] Unlike other cost models, the HAI model treats transport and entrance facilities as a single element, and the resulting figure takes into account the relatively higher price of entrance facilities. In this brief, the term "transport" includes both interoffice transport and entrance facilities unless otherwise noted.

which the model generates very low UNE rates: *i.e.*, regular analog loops. Instead, AT&T selectively challenges the use of that model only where it would *disadvantage* AT&T by producing higher UNE rates than the alternative Qwest model ("ICM"): *i.e.*, only as to high capacity circuits such as those used for transport. *Id.* That mix-and-match proposition would be unsupportable even if the low rates the HAI model produced for regular loops were somehow unrelated to the relatively higher rates the model produced for high-capacity circuits. But in fact the two sets of numbers are related. One reason the HAI-produced loop numbers are low is that the HAI model allocates various expense factors to *other* network facilities in proportion to their estimated direct costs. Because AT&T would slash the estimated direct costs of high-capacity circuits by moving to a different cost model for those facilities, it would fail to account for an enormous percentage of the costs underlying the expense factors. AT&T's selective "heads I win, tails you lose" disavowal of the HAI model is thus not only methodologically unjustified, but disingenuous.

AT&T contends, however, that "[t]he HAI Model's transport assumptions are not part of the record in this case." AT&T Exc. 12. That is quite false. The HAI module that calculates transport is included in the version of the model that AT&T and the other CLECs filed with the testimony of its witness, Douglas Denney, as confirmed simply by reviewing the model runs in the CD that Mr. Denney provided with his testimony. *See* Ex. AT&T/WorldCom-3, Ex. DKD-1; Exh. A, attached (excerpt from running the model with the inputs ordered in the ALJ recommendation). In addition, the HAI documentation filed with Mr. Denney's testimony specifically describes that module, explains how it calculates transport costs, identifies the relevant inputs, and discusses the

assumptions underlying those inputs. *See id.* at Ex. DKD-2 (HAI "Model Description), at 57-62. Similarly, AT&T and the other CLECs presented results from the HAI model for transport costs within their submissions in this proceeding. *See id.* at DKD-6-A and DKD-6-B; Exh. B, attached (pages from CD containing model, not attached as exhibits to Denney testimony but found in DKD-1).

AT&T pushes the envelope still further. It argues that the Commission should not only substitute Qwest's alternative model ("ICM") for transport, but that it should then radically reduce the cost figures produced by that model through a series of special adjustments, which, as discussed below, are wholly arbitrary. The ultimate result of all this gamesmanship would be transport prices radically lower than (1) the prices generated by the CLEC-sponsored HAI model, (2) the norm within Qwest's region, and (3) the prices adopted in the states in which the FCC has granted section 271 authorization: New York, Texas, Kansas, Oklahoma, Massachusetts, Pennsylvania, Missouri, and Arkansas.

Exhibit C illustrates the glaring discrepancies.[2] The composite prices for representative transport circuits under the approach AT&T now advocates would be $38.58 for a DS1 and $416.69 for a DS3. Under the HAI model, the corresponding figures are $146 for a DS1 and $1,749 for a DS3. Those rates fit comfortably within the range established in the other Qwest states and in the 271-authorized states; for the latter, the numbers range from $118.61 to $245.41 for a DS1 and from $968.58 to $3785.25 for

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[2] Exhibit C compares the direct trunk transport and entrance facility rates proposed in this proceeding to rates for these elements (1) ordered by state commissions in Qwest's region and (2) established in 271-authorized states. The exhibit lists the rates for these elements separately and on a combined basis, since some states combine the rates and others treat them separately. The combined listing provides a standard rate that permits comparison among states and between HAI and ICM. Use of the combined rate also is appropriate because most carriers buy an entrance facility combined with direct trunk transport.

a DS3. In short, AT&T's proposal would generate statistical anomalies below any possible measure of reasonableness or lawfulness. By contrast, application of the HAI model would place the rates squarely within the range of reasonableness established both by the other Qwest states and by the 271-authorized states. And application of the ICM *without* AT&T's proposed adjustments would produce rates already at the very low end of that range: $129 for a DS1 and $846.68 for a DS3.

As with the ALJ recommendation for the basic loop rate, it is no fluke that AT&T's proposed modifications of the ICM would produce statistical outliers, because the proposed modifications are all unsound. For example, AT&T proposes to take the ALJs' recommended adjustments to the overhead, network operations, and general support factors *in the HAI model* and then try to apply those adjustments to the ICM, not just for transport, but also for high capacity loops and collocation. AT&T Exc. 11, 13. That exercise would be irrational even if the ALJs' recommended reductions for those factors were appropriate *for the HAI model*, which, for reasons discussed elsewhere, they generally are not. *See* Qwest Exc. 31-32 (general support factors); *see also* pp. 21-23, *infra* (network operations). ICM and HAI are distinct cost models with different cost structures: they define factors differently and include different costs within each factor. For example, HAI and ICM vary significantly in the extent to which they include certain costs within general "overhead" rather than attributing them to particular elements. *See, e.g.*, Tr. 1012-16 (Gude Redir. and Recross.).[3] For the reasons discussed, the

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[3] Similarly, Staff relies on the ALJs' analysis of the overhead factor in the HAI model to propose "a 15% markup in the *collocation* models," which are wholly unrelated to the HAI model. Staff Exc. 8 (emphasis added). That proposal is untenable for the same reasons discussed in the text. Moreover, the corresponding "markup" in the HAI model

Commission should use the HAI model for determining transport prices, but if it uses ICM instead, it cannot lawfully play the "square peg, round hole" game AT&T proposes for the factors.

There is also no merit to AT&T's contention (Exc. 12-13) that the ICM understates utilization ("fill") factors, which estimate the percentages of occupied and spare capacity in a given facility, and overstates installation factors (also known as "TIFs"), which measure, among other things, the costs of warehousing and transporting network equipment. First, AT&T proposes a uniform 85% fill factor for all high-capacity facilities, contending, in effect, that those facilities will be used at 85% of their capacity at any given time. That assumption is totally unrealistic, because the transmission pipes available on the market move from thin to fat in very large increments of capacity. Thus, once a carrier needs the equivalent of even 10 DS1 circuits for transport, it would be most cost-efficient for it to purchase a fat pipe called a DS3, even though a DS3 can carry 28 DS1 circuits and only a fraction of that capacity would be needed to meet the carrier's immediate needs. *See also* p. 10 and note 4, *infra*. Moreover, as a practical matter, an 85% fill factor would be wholly irreconcilable with this Commission's emphasis on high service quality, because it would permit far too little spare capacity to prevent service outages during periods of unusually high traffic volumes.

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is not the 10.4% figure for overhead alone, but the much larger composite figure that combines overhead (10.4%), network operations expenses (18.4%), general support assets (7.0%), and taxes (6.6%). *See* Exh. D. In effect, Staff appears to propose that Qwest squeeze its entire cost recovery for the latter three items – network operations expenses, general support assets, and taxes – into a single 4.6% markup (15% minus 10.4%). That is preposterous.

AT&T separately proposes radical reductions to the TIFs on the theory that a carrier in a forward-looking environment could be expected to replace the existing network "instantaneously," Tr. at 1599 (Weiss Cross.), and would therefore have no need to warehouse any of the replacement facilities or transport them from vendors to their places of installation. That argument is profoundly inconsistent with TELRIC. That methodology asks not how much it would cost to wish a network into existence in the blink of an eye, but how much it would *actually cost* an efficient carrier to replace the existing network. Pricing UNEs at any lower figure, as AT&T proposes here, would unlawfully distort the price signals TELRIC is meant to convey about the economic efficiency of deploying new facilities. *See* Qwest Exc. 9-11.

2. High-capacity loops.

Although the HAI model produces UNE rates for entrance facilities and direct trunked transport, it does not produce such rates for high-capacity loops, and all parties agree that it is therefore appropriate to rely on the ICM to establish those rates. AT&T seeks to lower the ICM rates on the same grounds, discussed above, on which it relied in proposing aberrationally low transport rates. In particular, it contends that Qwest's fill factors are too low, that the TIFs are too high, and that the ICM expense factors should be adjusted on the basis of an analysis specific to the HAI model. AT&T Exc. 11-12. Those arguments are at least as invalid for high-capacity loops as they are for transport. If anything, AT&T's argument for an 85% fill factor is even more absurd in the high-capacity loop context than in the transport context. The difference between interoffice traffic volume on the one hand and customer-specific traffic volume on the other generally raises fill factors for transport above those for loops. That AT&T's own

witness could not provide a single example of any carrier in any context that has achieved the fill factor AT&T proposes here for high-capacity loops should be dispositive of its claim. Tr. at 1575-76 (Weiss Cross).[4]

AT&T also asserts (Exc. 11) that Qwest has overstated the material costs of high-capacity loop facilities because it "based its investment calculations on 1999 contract prices rather than lower contract prices it has obtained since that time." These price differences reflect the fact that Qwest updated its cost study in late 1998 and early 1999 and then, in late 1999, entered into an agreement containing somewhat lower equipment prices. Tr. 862-64 (Million Redir.). Qwest has no objection to substituting current prices into the relevant cost model where that is appropriate, but the effect of that substitution here would lower the otherwise applicable rate by only a few percent. *See* Tr. 371 (Fleming Dir.) (addressing impact in collocation context).

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[4] Much of AT&T's argument assumes that an efficient carrier would achieve very high fill factors by widely deploying fiber-optic SONET rings throughout a forward-looking network. That assumption is profoundly flawed in the several independent respects discussed in detail by Teresa Million in her rebuttal testimony (Ex. Qwest-18 at 33-37) and summarized by Qwest in its post-hearing reply brief (at 9-10). At bottom, AT&T argues that, in a forward-looking network, an efficient carrier would deploy a high-capacity fiber facility to a single customer who needs only one DS1 circuit and that the carrier would then achieve an 85% utilization rate on that facility. That is absurd. Moreover, unlike AT&T's proposal for an untenably uniform 85% fill factor applicable to all high-capacity circuits, the more realistic fill factors in Qwest's model vary with the type of architecture involved and range from 37% to 100%. Ex. Qwest-18 at 28-29 (Million Reb.). Even the figure at the low end of that spectrum is higher than the utilization rate Qwest actually achieves for the applicable architecture (OC3-based SONET fiber mux). *Id.*

II. The Commission Should Reject Proposals To Deny Qwest Any Meaningful Compensation For Labor-Intensive UNE Provisioning Tasks

A. Loop and UNE-P Provisioning.

The ALJs' recommendation for nonrecurring charges would permit Qwest to recover virtually nothing for many of the labor-intensive activities than any efficient carrier must undertake to provide network elements to wholesale customers. For example, the ALJs would permit Qwest to charge CLECs only $1.70 for performing a function called "basic loop installation": the task of provisioning a stand-alone loop to a CLEC. That task requires Qwest personnel, among other activities, to process the order, go to the central office distribution frame, identify the relevant facilities, disconnect the appropriate loop from the frame, and run jumper cables to the CLEC's collocation space. Qwest Exc. 38-40. As discussed in Qwest's exceptions, it would make no sense to permit only a $1.70 charge for a provisioning task that inevitably requires human intervention, and for which other state commissions, including the Colorado commission, have ordered nonrecurring charges some 50 times higher. *Id.* at 39-40.

Indeed, the ALJs' $1.70 proposal is so bizarre that, in its Exceptions, Qwest sought to give it the benefit of the doubt by construing it to cover as little as possible. *Id.* at 4-5, 42-44. In particular, Qwest construed that proposal to cover *only* basic loop installations, as to which the proposal is already patently untenable, and not to cover the even more labor-intensive functions known synonymously as "coordinated installations" or "hot cuts." A "hot cut" is a one-time service that a residential or business customer typically orders when it is already using the loop in question to receive service from Qwest and needs to avoid any lengthy interruption in service when Qwest technicians disconnect the loop from Qwest's switch and reroute it to the CLEC's network. *See id.* at

42-43. To avoid such an interruption, Qwest and CLEC technicians must closely coordinate a number of labor-intensive tasks necessary to synchronize an efficient loop cutover, and the Qwest technicians must then stand by to resolve any reports of trouble on the line.

Moreover, if requested by the CLEC, as is often the case, Qwest must also dispatch technicians to the field to test the effectiveness of that cutover (a "hot cut with test"). To conduct that test, these technicians visit the feeder-distribution interface and the customer premises to locate the proper connection points for the loop, verify that the loop is attached to the correct number in the central office, place a device on the line to check for shorts, verify dB losses, and then wait for confirmation from CLEC personnel that the loop actually works for its intended use. In this and other jurisdictions, the additional costs associated both with "coordination" and with simultaneous "testing" are reflected in additional charges on top of those ordered for a basic loop installation itself. For example, the Colorado commission recently ordered a charge of $87.74 for a basic installation of an ordinary DS0 loop; a charge of $94.78 for a coordinated installation ("hot cut") of such a loop without testing; and a charge of $229.33 for a coordinated installation *with* testing. *See* Exh. E (Colorado price list).

According to AT&T, the ALJs' $1.70 proposal should cover not just basic loop installations, but hot cuts as well, even when a CLEC orders the comprehensive field activities associated with testing. For its part, Staff recommends that, "[t]o be consistent," the rates for hot cuts should be whatever the CLECs propose, even if that turns out to be $1.70. Staff Exc. 7. But "consistency" – not to mention the law – requires the adoption of rates for both basic installation and hot cuts that consistently *reflect* the

costs, rather than consistently *ignore* the costs, that any efficient carrier would incur today in providing those services. All such services involve substantial costs, including the costs of human labor at the frame and, in the case of testing, substantial labor in the field as well.

The flesh-and-blood technicians needed to perform that labor cannot be expected to work for free. That is why, in this very docket, Staff itself recommended a nonrecurring charge of $141.67 for the service of loop installation with testing. Staff gives no rationale whatsoever for its apparent acquiescence in an obviously noncompensatory charge approaching zero for that same service. AT&T likewise offers no support for its inscrutable suggestion (Exc. 14) that, when a CLEC orders the service called "coordinated installation with testing," it is somehow "unnecessary" to compensate Qwest for any of the activities constituting that service, such as dispatching a technician to the customer location to conduct the testing the CLEC has ordered. Indeed, AT&T's position is profoundly inconsistent with this Commission's continuing emphasis on Qwest's need to hire more salaried technicians to ensure adequate service quality for retail and wholesale customers throughout Arizona.

Qwest has focused on the nonrecurring charges for installation of ordinary DS0 loops simply by way of illustration; the ALJs recommendation for other NRCs, as interpreted by Staff and the CLECs, would be equally draconian. Basic and coordinated installations of high-capacity loops, such as DS1s and DS3s, require even more labor than the corresponding functions for DS0 loops. For example, when a CLEC orders the coordinated installation of a high-capacity loop with testing, Qwest technicians, in addition to the other tasks discussed above, must design a circuit to accommodate all the

locations of the relevant cables, terminal equipment, and CLEC connection points; they must often wire jumpers at the feeder distribution interface and at the customer premises itself; they must install the sophisticated terminal equipment required for DS1 or DS3 service; and they must run a battery of tests to ensure an appropriately high quality of signal.

Because all of these activities impose very significant costs, the Colorado commission recently ordered nonrecurring charges of $154.79, $163.84, and $352.84 for, respectively, basic installation of a DS1 or DS3 loop, coordinated installation of such a loop without testing, and coordinated installation with testing. In contrast, under the CLECs' understanding of their nonrecurring charge model, the corresponding charges in Arizona would be $23.40 *for all three* categories of non-recurring costs. Nor is loop provisioning the only area in which the CLECs' approach produces staggering anomalies. The Colorado commission recently ordered nonrecurring charges of $55.43 and $82.28 (depending on the circumstances) for the provision of the UNE platform *over a line not currently in use.*[5] Although, as discussed in Qwest's Exceptions (at 43-44), the ALJs' recommendation for this rate element is obscure, AT&T and Staff have now construed it

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[5] As noted in Qwest's exceptions (at 43 n.30), the function underlying this charge is distinct from the function known as "UNE-P migration" (or "UNE-P conversion"), which involves providing the platform (*i.e.*, all facilities needed to provide service) to a CLEC over a line *already in use*. Because, by definition, the latter function requires no reconfiguration of any network facilities, the parties agree that the applicable nonrecurring charge should be less than $1.00. Similarly, the Colorado commission ordered a nonrecurring charge of $0.68 for "UNE-P migrations" at the same time that it ordered rates of $55.43 and $82.28 for providing the UNE platform over a line *not* currently in use. The ALJ recommendation here appears to have overlooked the distinction between these two quite different platform provisioning functions, and, in proposing a nonrecurring charge of $0.28 for each, AT&T apparently hopes that this Commission will follow suit.

to propose a charge of $0.28, less than one two-hundredths of what Colorado recently ordered after an exhaustive TELRIC inquiry.

Of course, this Commission is not bound by the decisions of other state commissions; as the FCC has long observed, different state commissions properly applying TELRIC may reach different numerical results, depending on their choice of cost models and inputs. But different state commissions, both applying TELRIC, cannot rationally reach results for the same rate element that diverge by *orders of magnitude*. The forward-looking cost of a hot cut with testing cannot be $1.70 in Arizona if it is $229.33 in Colorado, nor can the forward-looking cost of providing the UNE platform over a new line be $0.28 in Arizona if it is $82.28 in Colorado. And, as discussed in Qwest's Exceptions (at 39-40), the ALJs' proposed rates, not Colorado's, are the outliers here: as other state commissions recognize, reconfiguring network facilities requires human labor, and labor requires compensation.

Finally, to the quite unclear extent that the CLECs seek to justify these miniscule nonrecurring charges on the theory that the costs of the underlying activities should be recovered "in the factors" for recurring charges instead, the short answers are these. First, there is no evidence in the record that such costs appear "in the factors" at all, much less at compensatory levels. *See* Qwest Exc. 41. Second, the recurring rate the CLECs' model produces for the loop would not be remotely compensatory even if that rate were *not* expected to cover the one-time provisioning costs normally recovered through nonrecurring charges. *Id.* Finally, even if these costs *were* included in the factors, it is inappropriate and unlawful to force an ILEC to recover up-front, CLEC-specific costs through recurring charges, spread out over decades, in the absence of any assurance that

the purchasing CLEC will provide service long enough to repay even a fraction of the debt. *Id.* at 41-42.

In sum, the CLECs have made no serious proposals for nonrecurring charges, and to the uncertain extent the ALJs have adopted those proposals in their recommendation, that recommendation should be disregarded. The Commission should instead adopt Qwest's proposals or, at a minimum, the proposals originally made by Staff before the ALJs.[6]

B. Loop Conditioning.

When a CLEC orders a loop for a customer that wishes to use it for DSL service, Qwest must sometimes dispatch technicians to remove any "load coils" or "bridge taps" on the loop that would interfere with the provision of that service. That labor-intensive, time-consuming exercise is called "loop conditioning." AT&T argues (Exc. 14-15) that Qwest should be denied any nonrecurring charges to recover the costs of loop conditioning, reasoning that "load coils and bridge taps would not be placed in a forward-looking network." As AT&T surely knows but fails to reveal to the Commission, however, the FCC considered and repudiated that exact argument several years ago. As the FCC explained then, although "networks built today normally should not require voice-transmission enhancing devices on loops of 18,000 feet or shorter," those devices are nonetheless "sometimes present on such loops, and the incumbent LEC may incur

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[6] Although Staff contends otherwise (Exc. 8), the ALJ recommendation does not purport to address non-recurring charges for vertical switching features, and that issue, like other switching issues, is properly addressed in Phase IIA of these proceedings.

costs in removing them. Thus, under our rules, *the incumbent should be able to charge for conditioning such loops*."[7]

AT&T alternatively argues (Exc. 15) that Qwest should recover a nonrecurring charge of only $40 *per location* (*i.e.*, for each place visited by a technician), plus a nominal $2.00 surcharge for each additional loop beyond the first, rather than the $40 *per loop* per location formula proposed by the Staff and adopted by the ALJs (R.O.O. 35-36). This is mathematical alchemy.

During the proceedings below, Staff and Qwest agreed that it costs any efficient carrier on average *well more than a hundred dollars*, if not hundreds of dollars, to dispatch technicians to condition *even one loop* in a 25-loop "binder group." *See* Tr. 1187-88 (Dunkel Cross.). Staff and Qwest disagreed about whether the entirety of those costs should be recovered from a CLEC that orders only one or several DSL-capable loops on a still-unconditioned binder group. *Id.* at 1185-87. The $40 figure upon which AT&T relies here represents Staff's estimate of the *per-loop* cost of conditioning the loops in a binder group on the assumption that, in most cases, *all 25 loops* will be conditioned during the same trip. *Id.* at 1188.[8] As Staff's witness emphasized,

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[7] *In the Matter of Implementation of the Telecommunications Act of 1996*, Third Report and Order, 15 F.C.C. Rcd. 3696 ¶ 193 (1999) ("*UNE Remand Order*") (emphasis added).

[8] The ALJs proposed a somewhat different approach for loops exceeding 18,000 feet, which are rarely capable of providing effective DSL service in the first place, and on which load coils often serve a valid engineering function (and thus often should not be removed at all). For those loops, the proposed charge turns on whether the loops to be conditioned are "underground" (*i.e.*, in conduit), in which case the costs of conditioning are relatively high, or are instead either "buried" (*i.e.*, not in conduit) or "aerial," in which case the costs of conditioning are relatively low. For underground cable, the proposed charge is $400 per location (a figure AT&T simply ignores, see Exc. 15); for buried and aerial cable, the proposed charge is $70 per location; and in each case, there is an additional surcharge of $2.00 per loop. R.O.O. 35. In contrast, for loops below 18,000

depending on the number of loops a CLEC orders, the ultimate result of Staff's *per-loop* approach will lead to higher or lower numbers than Qwest's proposal for a flat $652.83 charge *per location*, because Staff's approach is "all based on averages." *Id.* at 1187-88. At bottom, therefore, what AT&T proposes is to convert this $40 *per loop* estimate, adopted by the ALJs, into a completely arbitrary $40 *per binder group* estimate, with the token $2.00 per-loop surcharge thrown in as a fig leaf. The Commission should reject this numerical sleight-of-hand.

III. The Commission Should Reject AT&T's Arguments For Further Lowering The Recurring Loop Rate

Qwest's exceptions address the several different respects in which the ALJs' recommendation for the recurring loop rate departs from TELRIC and, indeed, common sense. With respect to customer location data, the recommendation uses current (and erroneous) line counts but assumes away the geographic expansion of homes and businesses in Arizona since 1997. Qwest Exc. 12-18. In adopting the MST function, it assumes that Arizona has no houses, office buildings, or other obstacles that could interfere with the cheap deployment of telephone lines. *Id.* at 18-21. With respect to structure sharing, it assumes that, whenever Qwest places facilities in the ground, some other utility will appear 100% of the time and agree to pay half the cost of trenching or boring. *Id.* at 22-27. With respect to placement costs, it assumes that roads made of asphalt can be plowed like dirt, and it analyzes not the "total element long run" cost of replacing the telecommunications network, as TELRIC requires, but the short-run

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feet, the proposed $40.00 per-loop charge appears to represent per-loop conditioning costs averaged among all loops: underground, buried, and aerial. *See* Ex. Staff-29, Schedule WD-8 at 9. Although these two approaches are different, they are not, as AT&T contends, necessarily inconsistent.

marginal cost of adding capacity to the existing network. *Id.* at 27-30. And, through what appears to be a simple accounting mistake, it arbitrarily cuts in half the costs for the general support assets, such as trucks and computers, needed to run any network. *Id.* at 30-32.

As Qwest has noted, the aggregate consequence of adopting these methodological errors would be a non-compensatory loop rate radically below the median rate adopted by the other 13 state commissions in Qwest's region. *See id.* at 2-3. In its own exceptions, AT&T seeks to throw a few more errors into the mix to lower the loop rate still further. Those exceptions are readily dismissed, and Qwest discusses only several of them here.

A. Structure sharing.

AT&T first argues (Exc. 6) that the ALJs' already unsustainable savings assumption of 50% should be ratcheted up to 60%.[9] To put this statistic into concrete terms, AT&T argues that, whenever an efficient carrier seeking to replace Qwest's existing network would need to dig into the ground, that carrier could count on other utilities to show up 100% of the time and agree to pay not just half, but in fact 60%, of the costs of digging. This is absurd.

The fact that "Arizona is a high-growth market" (AT&T Exc. 6) does not begin to support AT&T's immodest proposal. TELRIC requires an inquiry into the "total element, long-run" cost of replacing the entire network, not the short-run marginal cost of adding a few distribution lines to the existing network, a point the ALJs themselves

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[9] As noted in Qwest's exceptions (at 23 n.16), a "savings percentage" is the flip side of the percentage of costs a carrier is expected to cover *itself*. The latter figure is the relevant input in the HAI model. Thus, AT&T describes its 60% savings assumption as a 40% input.

overlooked when assuming the availability of Qwest's existing conduit when addressing the related issue of placement costs. *See* Qwest Exc. 22, 29. TELRIC therefore requires taking into account the extent to which a carrier building a replacement network would need to cover the costs of placing facilities not just in developing areas, but also in the overwhelming majority of areas served by the network that are fully developed today. In those areas, the "other utilities" at issue (such as cable and electric power companies) have already placed their facilities and thus have no need to share in the costs of additional digging. *See id. at* 23-24. Moreover, *even in growth environments*, a carrier's real-world savings percentages are closer to 18% (see *id.* at 26), because, as the CLECs' own witness conceded, utilities "typically" place their facilities "at totally different times." Tr. 1623-24 (Weiss Redir.). AT&T offers no rational basis for *raising* the ALJ-proposed savings percentages; to the contrary, for the reasons discussed in Qwest's exceptions, those percentages are unlawfully high as it is.[10]

B. Plant mix.

There is similarly no merit to AT&T's argument that the 19% aerial percentage adopted by the ALJs somehow underestimates the amount of aerial plant that would be deployed in a replacement network. AT&T begins by asserting that the existing network contains 36.5% aerial network. Exc. 6. As an initial matter, that figure grossly overstates

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[10] AT&T also suggests (Exc. 6) that Qwest should, in effect, "share" with itself in placing "inter-office and loop facilities" in the same trench and should "plac[e] excess capacity for future use." Each of those proposals is baffling. As to the first, it is unclear what this argument has to do with the "sharing" input in the first place, and, in any event, AT&T provides no evidence that transport and loop facilities could be placed together often enough to make any substantial difference in the cost of the latter. As for the need to "plac[e] excess capacity for future use," that issue is addressed through the input for fill factors, not the input for structure sharing, and AT&T's proposal here is at war with, among other things, the HAI model's pro-CLEC assumption of high fill factors.

the amount of aerial plant in Arizona, because, as the AT&Ts' own witness conceded, it excludes fiber plant and includes rural "C-wire" that would seldom (if ever) be deployed in a forward-looking network. Tr. 1461-63 (Denny Cross.). In any event, as the ALJs recognized (R.O.O. 15), the aerial percentage in the *embedded* network, deployed over the course of many decades, has no particular relevance to the *forward-looking* inquiry at issue here: an inquiry into the kinds of replacement facilities that would need to be deployed in today's world of zoning restrictions and underground fiber-optic facilities.

AT&T next argues (Exc. 7) that the ALJs took inadequate account of "aerial plant placed as building cable." But AT&T cites no evidence that the AT&T-sponsored, ALJ-accepted HAI model itself includes enough such plant to make any real difference in the overall plant mix. Finally, "considering both the cost of placing aerial plant and the cost of maintaining that plant," as AT&T proposes (Exc. 7), in fact justifies adoption of a lower, not higher, aerial plant figure: aerial cable is notoriously more vulnerable to environmental factors than underground cable, and it thus produces maintenance costs that can substantially offset any savings in placement costs. *See, e.g.,* Ex. Qwest-1 at 28 (Buckley Dir.).

C. Network operations expenses.

AT&T cites no discernible basis for lowering network operations expenses beyond the aggressive 15% reduction the ALJs have already recommended (*see* R.O.O. 25-26). First, Qwest has significantly reduced these expenses over the past several years in response to prior proceedings, and it could not make significant additional reductions "without causing a noticeable negative impact on service quality" in Arizona. Ex. Qwest-29 (Fitzsimmons Reb.) at 56-57. Put another way, the HAI model adopted by the

ALJs "has already captured the cost reductions achieved by Qwest in prior years," such that "[a]pplying an arbitrary 50 percent reduction on top of cost savings already achieved grossly understates network operation expenses," *id.*, a point the ALJs largely accepted (R.O.O. 26). Although AT&T speculates vaguely about the network operations savings Qwest could supposedly achieve through "SONET-based transport" (Exc. 8), AT&T produced no record evidence showing exactly how greater deployment of such facilities would affect the specific cost accounts that constitute network operations. In any event, the circumstances in which it would be efficient to deploy SONET facilities even in a forward-looking network are limited. *See generally* Ex. Qwest-18 (Million Reb.) at 33-34.

Finally, AT&T seeks to justify its noncompensatory $1.39 per-line input for network operations expenses on the ground that this figure is only slightly lower than a supposedly analogous figure the FCC has adopted as an input in its universal service cost model. That argument is wrong on two levels. First, as the FCC itself has repeatedly emphasized, it is inappropriate to use inputs from the universal service cost model, which is designed to address only the *relative* allocation of subsidies among states, as inputs for the *absolute* rate levels set in a UNE cost proceeding. *See* Qwest Exc. 20-21. Second, any given input in one cost model (such as HAI) may be defined quite differently from the ostensibly "corresponding" input in another cost model (such as the one the FCC uses for universal service purposes), particularly for accounting-related factors such as network operations expenses. AT&T offers no basis for concluding that its comparison here would be an apples-to-apples comparison *even if* it were otherwise generally

appropriate, which it is not, to extrapolate from the FCC's universal service cost model for purposes of setting UNE rates.[11]

D. Other issues.

Qwest rests on its post-hearing briefs with respect to AT&T's arguments about drop lengths (AT&T Exc. 7-8) and the grooming charge (*id.* at 9). AT&T's essential position on the latter issue – *i.e.*, that the use of "integrated digital loop carrier" ("IDLC") in a forward-looking network would eliminate grooming costs – is not just wrong, but nonsensical. IDLC converts the signals from many different loops into a digital signal that is routed from a remote terminal through a single feeder facility to an ILEC's switch. To reroute some portion of that traffic to a CLEC switch, the ILEC must install electronics at the central office to separate ("groom") the loops the CLEC has leased from those it has not leased. Thus, contrary to AT&T's suggestion (Exc. 9), there is no way to "feed" such traffic "directly into the CLEC switch without the need for demultiplexing at the central office" unless the ILEC were to install special DS1 lines running from the remote terminal directly to the CLEC's switch. The costs of such absurdly inefficient facilities would of course dwarf the costs of grooming.[12]

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[11] AT&T also contends in passing (Exc. 8) that some adjustment is necessary to remove supposed retail-specific expenses from the network operations expense factor. That argument is wrong for the same reasons (among others) that the ALJs were fundamentally mistaken as an accounting matter in believing that a 50% reduction in general support assets is necessary to accomplish the same objective. *See* Qwest Exc. 31-32.

[12] In its compliance filing (at 5-7), Qwest noted that adopting the ALJs' assumption of 10% IDLC within Qwest's network (R.O.O. 20) would have the net effect of raising loop costs overall because it would increase the required investment in line cards associated with the alternative universal digital loop carrier ("UDLC") technology. If, in contrast, the Commission were to adopt the HAI model's assumption of 70% IDLC, that would eliminate the extra costs of UDLC within the model, but it would simultaneously increase

As for AT&T's claim (Exc. 10) that the price of a 4-wire loop should be only 1.3 times the price of a 2-wire loop, Qwest refers the Commission to Staff's correct treatment of this issue: because a 4-wire loop is the equivalent of two 2-wire loops, its price should cover the cost of two 2-wire loops minus the cost of one network interface device. Staff Exc. 2. AT&T's contrary argument, that the costs of placing a 4-wire loop are similar to those of placing a 2-wire loop, rests on a simple mathematical error. Without AT&T's proposed adjustment, the HAI model *already takes into account* the lower cost of placing second lines, and thus of placing the additional 2-wire pair in a 4-wire loop, in calculating the *average* cost of *all* lines. That average cost, like the associated UNE rate, applies to both primary and second lines; the HAI model does not distinguish between the two. If, as AT&T proposes, a 4-wire loop were *not* treated as equivalent to two 2-wire loops for cost purposes, the average cost figure for all lines, and thus the underlying price of a 2-wire loop, would increase accordingly. AT&T cannot have it both ways.[13]

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the circumstances in which "grooming" would be necessary to provision individual loops to CLECs from IDLC facilities. That would also tend to increase the loop rate overall, because grooming costs are typically averaged over the cost of all loops (or, alternatively, all loops ordered as stand-alone UNEs, as to which grooming is often necessary, rather than as part of the UNE platform, as to which it is not).

[13] In its exceptions (at 1), Cox contends that the Commission should not only use this cost proceeding to create a brand new UNE called "on-premises wire," but should in fact adopt for that new UNE a particular rate buried in a price list submitted by an AT&T witness who provided no description of any such element or any testimony explaining it. As Cox itself acknowledges, the cited entry is for "the HAI Model equivalent to the Qwest LoopMod's 'Intrabuilding Cable' price" (*id.*), and the cost of intrabuilding cable is likely much lower than the cost of the campus wire facilities that Cox wishes to merge with intrabuilding cable into the same UNE. *See* Qwest Exc. 46. Cox's proposal for using the intrabuilding cable number for that UNE is therefore meritless on its face. Indeed, nothing in the record substantiates any rate for the combined campus wire/intrabuilding cable UNE Cox seeks here. In any event, as Qwest explained in its exceptions (at 45-46), it would be inappropriate to use this cost proceeding to create a new UNE, particularly when the parties had no notice that the proceeding would be used

IV. The Commission Should Reject The Proposals Of WorldCom and Staff To Lower Qwest's Collocation-Related Charges Still Further

Although in many respects the ALJs recommended collocation rates well below what Qwest had proposed, Qwest did not file exceptions to the collocation portion of the ALJ recommendation. WorldCom, however, has filed a number of such exceptions, and to a limited extent Staff has as well. Rather than relitigate all of these collocation issues here, Qwest respectfully refers the Commission to the relevant sections of its post-hearing briefs. Nonetheless, a few points warrant separate mention.[14]

A. Power cabling costs

The ALJs accepted much of WorldCom's position concerning DC power cabling costs. R.O.O. 43-44. WorldCom nonetheless persists in contending (1) that Qwest's own cost studies support an average cable length of 70 feet, rather than 177 feet, for purposes of calculating power cabling costs, and (2) that there is something self-contradictory about Qwest's use of length estimates close to both of those figures. WorldCom Exc. 6-7. That argument is simply confused. Qwest's studies measure power cabling costs in two distinct contexts: where a collocating CLEC orders less than 60 amps of DC power, and where it orders more. When the CLEC needs less than 60 amps, it is most energy-efficient to run a power cable from the collocation space to an intermediate power board within the central office known as the "battery distribution fuse board," or "BDFB." The

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for that purpose. And if such a UNE were created anyway, it would then be necessary to raise the price of the remaining facilities included within the subloop element of which campus wire is now a part. *Id.*

[14] Time Warner Telecom argues (Exc. 2-4) that Qwest should not impose charges on CLECs that decommission physical collocation arrangements. Qwest has agreed, through the Change Management Process, not to impose such a charge. Accordingly, there is no need for the Commission to address Time Warner Telecom's argument.

average length of such cables in Arizona is 80 feet. *See* Ex. Qwest-8 (Fleming Reb.) at 79. In contrast, when a CLEC needs more than 60 amps, it is most energy-efficient for the CLEC to bypass the BDFB and run a power cable directly to the main power board. The average length of that cable in Arizona is 177 feet. Whether a CLEC pays for the longer 177-foot cable or the shorter 80-foot one properly turns on its individual power needs.[15]

B. WorldCom's "double-counting" concerns

WorldCom contends (Exc. 11-12) that the "space construction" charge – the charge imposed for building out new areas for collocation within the central office – "contains HVAC and electrical costs [*i.e.*, for AC, not DC, power] that are also included in the floor space rent." Exc. 11. That is incorrect. As Staff has acknowledged, Qwest has already removed from its rent study the costs of moving ducts and AC power cables to build out new collocation space. *See* Ex. Qwest-8 at 72-73 (Fleming Reb.); Ex. Staff-29 at 23-24 (Dunkel Dir.). WorldCom similarly argues (Exc. 12) that Qwest should not apply "power or land or building factors" to "facilities, like overhead cable racking, that use no power or floor space," reasoning that because "collocators already pay directly for power and space rental," other collocation elements "should not include land and building investment." That argument too is without merit. In its collocation study, Qwest does not apply these factors to the facilities or space dedicated to a CLEC; the

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[15] As WorldCom acknowledges, Qwest's rebuttal testimony provides "Arizona specific data," based on "actual power cable lengths for all Arizona collocation jobs," showing that "the average length of cables running to a BDFB is 80 feet" and that "[t]he average length of cables running directly to the power board is 177 feet." Ex. Qwest-8 (Fleming Reb.) at 79. Those figures differ only trivially from the assumptions in Qwest's model (83 feet and 183 feet). *Id.* Qwest has no objection to using the 80-foot and 177-foot figures.

only central office assets to which the factors are applied are those that the CLEC uses, *outside* of its rented collocation space, in common with the ILEC. Ex-Qwest-27 at 27-28 (Gude Rebut.).

There is likewise no merit to WorldCom's separate argument (Exc. 12) that it is inappropriate to apply a power factor to facilities, such as cable racking, that use no power. Spreading these costs evenly over all assets in the central office (other than those dedicated to CLECs) is a reasonable means of reflecting the benefits CLECs receive from using those assets; it creates neither unfairness to CLECs nor, as WorldCom argues (Exc. 12), an opportunity for "Qwest to 'over recover' its power and land and building cost." Indeed, even if it were administratively practicable to distinguish between central office assets that use power and those that do not, drawing that distinction would create trade-offs for CLECs and an accounting wash for Qwest. If power-consuming equipment *were* segregated and placed by itself in the denominator of the cost formula, the mathematical consequence would be a *net increase* in the rates for UNEs, such as switching and transport, that are provided over equipment that does consume power. Tr. 971 (Gude Cross.). There are many contexts in which administrative feasibility requires basing UNE rates on cost averaging, and this one is no different: there are practical limits to how thinly a cost model can and should slice the onion.[16]

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[16] The Commission should flatly reject WorldCom's argument (Exc. 14-15) that Qwest should comprehensively "explain the basis" for the rates it charges for access to information services and databases that Qwest need not even unbundle as UNEs under 47 U.S.C. § 251(c)(3). That argument is frivolous: this docket addresses UNE pricing, and it would be inappropriate to use it as a pretext for compelling Qwest to "explain the basis" for rates not subject to the 1996 Act in the first place. There is specifically no legal basis for subjecting Qwest to regulated rates for providing access to its directory assistance database. Contrary to WorldCom's view (Exc. 15), that database is part of the

C. Material costs.

Staff proposes a radical and wholly unjustified 50% reduction in the costs of materials Qwest must purchase to meet the collocation needs of CLECs. Staff Exc. 3-4. Staff offers a total of three anecdotes to support that proposal: a purported 20% discrepancy between the proposed and actual costs of certain optical digital equipment; a supposedly larger discrepancy between the proposed and (dated) actual costs of DS0 termination blocks; and a supposed assertion by Qwest that it paid "a ridiculously high $0.98 for each flat washer used on a collocation job." Staff Exc. 4. Because the third of these anecdotes is both the most inflammatory and the most obviously incorrect, it will be addressed first: Qwest paid $0.98 for *a bag of 100 washers*, not "$0.98 for each flat washer." *See* Tr. 880 (Fleming Cross.).

The other two discrepancies cited by Staff, the first of which does not even relate to collocation, do not begin to justify an across-the-board 50% decrease in material costs for all collocation-related items. After any carrier issues cost estimates based on its own experience with market prices for given items, that carrier will continue to buy those items from a variety of different vendors; sometimes the carrier will strike a better deal with the same or a different vendor, and sometimes it will strike a worse deal. Those

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"operator services/directory assistance" UNE that the FCC removed from the list of elements to be unbundled, upon determining that this UNE does not meet the "impairment" standard of 47 U.S.C. § 251(d)(2). *See UNE Remand Order* at ¶¶ 441-464. That fact is completely dispositive of WorldCom's exception on this point. Similarly misplaced is WorldCom's argument concerning an issue that has not been addressed up to this point in this docket: whether Qwest should be required to offer access to the ICNAM database on a "batch" basis rather than a per query basis. WorldCom Exc. 17-19. This issue has been raised before the Commission in the 271 proceeding, Docket No. T00000A-97-0238. If any further consideration were warranted, it should be in the context of that docket, not via WorldCom's improper collateral attack here.

price variations can reflect a variety of external factors, such as technological advances (which tend to decrease prices) and demand surges (which tend to increase them). Staff's position appears to be (1) that whenever Qwest has paid two different prices for an item over a period of several years, the lower of those two prices is necessarily the current market price (and therefore the forward-looking price), and (2) that Qwest's failure to base its cost estimates on the lower of the two prices for *any* item is reason enough to subject it to a punitive 50% cost reduction for *all* items.

Each step of that logic is flawed. As to the first, market prices rise and fall over time for a variety of reasons; the existence of such fluctuations does not mean that Qwest has overstated forward-looking material costs if it fails to adopt, for modeling purposes, the lowest price it ever managed to pay for an item. As to the second, Staff's proposal to extrapolate from the two cited examples to *all* collocation-related material costs embodies an egregious statistical fallacy. These examples, one of which does not even relate to collocation, are all that the CLECs could come up with after scrutinizing the multitude of Qwest's material costs. They are not remotely representative of material costs *in general* or, more specifically, of the accuracy of Qwest's cost figures. In sum, although Qwest has no objection to lowering the cost figures for the two items in question (although even that may be unjustified), any effort to lower the cost figures for all other items by analogy would be indefensible.

Staff also argues in passing (Exc. 3) that the material cost figures should be reduced on the grounds (1) that Qwest personnel perform most collocation jobs, (2) that Qwest's material cost data is derived solely from jobs handled by outside contractors, and (3) that outside contractors supposedly use more expensive materials than Qwest

personnel would use if they handled the job themselves. That is nonsense. Nothing in the record supports the notion that outside contractors pay systematically more for collocation-related materials than Qwest would pay. Indeed, Qwest typically purchases such materials itself from its regular vendors even when it hires outside contractors to perform the labor using those materials.[17]

CONCLUSION

The Commission should overrule the exceptions of the other parties, except to the extent that Staff's exceptions support Qwest's position in these proceedings.

Respectfully submitted this 3d day of January, 2002.

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[17] Staff's proposal for "a 15% markup in the collocation models" with respect to overhead and related expense factors is untenable for the reasons discussed at pp. 7-8 and note 3 above. Staff's proposal for extending a 50% reduction to all of Qwest's engineering costs, and not just those related to space construction, is also without merit. *See* Staff Exc. 4-5. Contrary to Staff's apparent assumption, the ALJs' rationale for proposing a 50% reduction for engineering costs associated with space construction (R.O.O. 40) is in fact specific to engineering issues in that particular context, and there is no basis for extrapolating from that proposal to the many other contexts involving quite different engineering tasks.

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ATTACHMENT A

ATTACHMENT A
HAI Cost Detail Tab

	interconnected at end office	interconnected at tandem	wtd average
Local interconnection			
EO switching	$ 0.00125	$ 0.00125	
ISUP	$ 0.00005	$ 0.00005	
Common Transport	$ -	$ 0.00079	
Tandem Switching	$ -	$ 0.00054	
TOTAL	$ 0.00130	$ 0.00262	n/a
IXC switched access			
EO switching	$ 0.00125	$ 0.00125	
ISUP	$ 0.00005	$ 0.00005	
Dedicated Transport	$ 0.00060	$ 0.00060	
Common Transport	$ -	$ 0.00079	
Tandem Switching	$ -	$ 0.00054	
TOTAL	$ 0.00190	$ 0.00323	$ 0.00217

Signaling detail		
cost per 800 call attempt (TCAP)		$ 0.0005
ISUP cost/transaction		$ 0.00035
ISUP cost/completion		0.0005
IXC switched access MOU/comp		10.22
	ISUP cost/min	$ 0.000049
	D link per month	$ 21.96
Dedicated Transport Costs Per Trunk		
DS-0 per month		
Transport per month		$ 2.21
Terminal per month *		$ 47.89
TOTAL		$ 50.10
DS-1 per month		
Transport per month		$ 53.09
Terminal per month		$ 92.69
TOTAL		$ 145.78
DS-3 per month		
Transport per month		$ 1,486.56
Terminal per month		$ 262.16
TOTAL		$ 1,748.71
Trunk Port Costs		
per trunk port (DS-0 equivalent) per month		$ 3.34
per trunk port minute		$ 0.000333
total EO usage per minute		$ 0.001247
trk port/min		$ 0.000333
other		$ 0.000914

Switching detail

The HAI Model engineers switch capacity based on the number of times calls have to pass through a switch fabric. For intraswitch calls, this is once. Because some rate structures for unbundled switching may impose two switch charges -- even when the call only passes through the switch once, the appropriate way to calculate the level of such switch charges is to divide the total usage cost of switching by DEMs (rather than actual switched minutes), because two DEMs are counted even when a call originates and terminates on the same switch.

Switch non-line port annual cost	77,490,977
Total DEMs	75,735,999,000
Cost per DEM	$ 0.00102

	0-5 lines/sq mi	5-100 lines/sq mi	100-200 lines/sq mi	200-650 lines/sq mi	650-850 lines/sq mi	850-2550 lines/sq mi	2550-5000 lines/sq mi	5000-10000 lines/sq mi	>10000 lines/sq mi	weighted average
calculated distribution fill (DLC)	46.5%	44.7%	47.1%	47.4%	48.3%	48.5%	48.2%	49.3%	53.3%	48.1%
calculated distribution fill (non-DLC)	43.5%	45.5%	52.6%	48.8%	51.0%	50.0%	50.0%	51.3%	53.4%	50.4%
weighted average										48.8%

Per DS0 Transport Calculations	
Entrance Facility Investment per Line	$ 1
Total Dedicated Terminal Investment	59,055,353
Total Lines	3,173,116
Total Dedicated Terminal Investment per line	$ 19
Entrance Facility percent to total	$ 0
Terminal Investment per DS-0	$ 168
Transport Investment per DS-0	$ 115

ATTACHMENT B

ATTACHMENT B
HAI Cost Detail Tab

	interconnected at end office	interconnected at tandem	wtd average
Local interconnection			
EO switching	$ 0.00121	$ 0.00121	
ISUP	$ 0.00005	$ 0.00005	
Common Transport	$ -	$ 0.00071	
Tandem Switching	$ -	$ 0.00052	
TOTAL	$ 0.00125	$ 0.00248	n/a
IXC switched access			
EO switching	$ 0.00121	$ 0.00121	
ISUP	$ 0.00005	$ 0.00005	
Dedicated Transport	$ 0.00055	$ 0.00055	
Common Transport	$ -	$ 0.00071	
Tandem Switching	$ -	$ 0.00052	
TOTAL	$ 0.00180	$ 0.00303	$ 0.00205

Signaling detail		
cost per 800 call attempt (TCAP)	$	0.0005
ISUP cost/transaction	$	0.00034
ISUP cost/completion		0.0005
IXC switched access MOU/comp		10.22
ISUP cost/min	$	0.000047
D link per month	$	21.47
Dedicated Transport Costs Per Trunk		
DS-0 per month		
Transport per month	$	1.80
Terminal per month *	$	46.31
TOTAL	$	48.11
DS-1 per month		
Transport per month	$	43.23
Terminal per month	$	89.63
TOTAL	$	132.85
DS-3 per month		
Transport per month	$	1,210.32
Terminal per month	$	253.50
TOTAL	$	1,463.81
Trunk Port Costs		
per trunk port (DS-0 equivalent) per month	$	3.23
per trunk port minute	$	0.000322
total EO usage per minute	$	0.001206
trk port/min	$	0.000322
other	$	0.000884

Switching detail

The HAI Model engineers switch capacity based on the number of times calls have to pass through a switch fabric. For intraswitch calls, this is once. Because some rate structures for unbundled switching may impose two switch charges -- even when the call only passes through the switch once, the appropriate way to calculate the level of such switch charges is to divide the total usage cost of switching by DEMs (rather than actual switched minutes), because two DEMs are counted even when a call originates and terminates on the same switch.

Switch non-line port annual cost	74,920,612
Total DEMs	75,735,999,000
Cost per DEM	$ 0.00099

	0-5 lines/sq mi	5-100 lines/sq mi	100-200 lines/sq mi	200-650 lines/sq mi	650-850 lines/sq mi	850-2550 lines/sq mi	2550-5000 lines/sq mi	5000-10000 lines/sq mi	>10000 lines/sq mi	weighted average
calculated distribution fill (DLC)	46.5%	44.7%	47.1%	47.4%	48.3%	48.5%	48.2%	49.3%	53.3%	48.1%
calculated distribution fill (non-DLC)	43.5%	45.3%	52.6%	48.8%	51.0%	50.0%	50.0%	51.3%	53.4%	50.4%
weighted average										48.8%

Per DS0 Transport Calculations	
Entrance Facility Investment per Line	$ 1
Total Dedicated Terminal Investment	59,041,250
Total Lines	3,173,116
Total Dedicated Terminal Investment per line	$ 19
Entrance Facility percent to total	$ 0
Terminal Investment per DS-0	$ 168
Transport Investment per DS-0	$ 98

ATTACHMENT C

ATTACHMENT C

Comparison of Rates-Direct Trunk Transport & Entrance Facilities (DS1)

	Direct Trunk Transport			Entrance Facilities			Combined		
	Fixed	Per 10 Miles	Combined	Fixed	Per 10 Mile	Combined	Fixed	Per 10 Mile	Combined
Arizona Proposed	$ 31.40	$ 11.80	$ 43.20	$ 86.70		$ 86.70	$ 118.10	$ 11.80	**$ 129.90**
Arizona HAI	$ 145.78		$ 145.78			$ -	$ 145.78	$ -	**$ 145.78**
Arizona CLEC Proposal	$ 21.38	$ 8.60	$ 29.98		$ 8.60	$ -	$ 21.38	$ 17.20	**$ 38.58**
Qwest States									
Arizona	$ 35.99	$ 9.40	$ 45.39	$ 89.42		$ 89.42	$ 125.41	$ 9.40	**$ 134.81**
Colorado (Note 3)	$ 37.66	$ 6.50	$ 44.16	$ 78.12		$ 78.12	$ 115.78	$ 6.50	**$ 122.28**
Idaho	$ 37.35	$ 18.20	$ 55.55	$ 91.61		$ 91.61	$ 128.96	$ 18.20	**$ 147.16**
Iowa	$ 190.29	$ -	$ 190.29	$ 140.33		$ 140.33	$ 330.62	$ -	**$ 330.62**
Minnesota	$ 100.65	$ -	$ 100.65	$ 67.71		$ 67.71	$ 168.36	$ -	**$ 168.36**
Montana	$ 37.26	$ 27.10	$ 64.36	$ 100.78		$ 100.78	$ 138.04	$ 27.10	**$ 165.14**
Nebraska	$ 30.23	$ 7.60	$ 37.83	$ 88.93		$ 88.93	$ 119.16	$ 7.60	**$ 126.76**
New Mexico	$ 32.93	$ 10.20	$ 43.13	$ 79.61		$ 79.61	$ 112.54	$ 10.20	**$ 122.74**
North Dakota	$ 41.53	$ 28.90	$ 70.43	$ 102.22		$ 102.22	$ 143.75	$ 28.90	**$ 172.65**
Oregon	$ 37.94	$ 8.50	$ 46.44	$ 87.37		$ 87.37	$ 125.31	$ 8.50	**$ 133.81**
South Dakota		No Order			No Order			No Order	
Utah	$ 38.07	$ 31.30	$ 69.37	$ 83.94		$ 83.94	$ 122.01	$ 31.30	**$ 153.31**
Washington	$ 33.12	$ 6.50	$ 39.62	$ 76.70		$ 76.70	$ 109.82	$ 6.50	**$ 116.32**
Wyoming	$ 32.92	$ 9.00	$ 41.92	$ 82.20		$ 82.20	$ 115.12	$ 9.00	**$ 124.12**
271 States									
Texas (4)	$ 38.15	$ 3.50	$ 41.65	$ 76.96		$ 76.96	$ 115.11	$ 3.50	**$ 118.61**
Kansas (4)	$ 40.78	$ 3.20	$ 43.98	$ 76.96		$ 76.96	$ 117.74	$ 3.20	**$ 120.94**
Oklahoma (4)	$ 78.09	$ 22.40	$ 100.49	$ 119.19		$ 119.19	$ 197.28	$ 22.40	**$ 219.68**
Missouri (4)	$ 70.87	$ 12.24	$ 83.11	$ 162.30		$ 162.30	$ 233.17	$ 12.24	**$ 245.41**
Arkansas (4)	$ 44.59	$ 7.20	$ 51.79	$ 76.96		$ 76.96	$ 121.55	$ 7.20	**$ 128.75**
New York	$ 110.00	$ 7.20	$ 117.20		$ 7.20	$ 7.20	$ 110.00	$ 14.40	**$ 124.40**
Massachussets	$ 126.35	$ 7.30	$ 133.65		$ 7.30	$ 7.30	$ 126.35	$ 14.60	**$ 140.95**
Pennsylvania	$ 35.22	$ 6.00	$ 41.22	$ 155.68		$ 155.68	$ 190.90	$ 6.00	**$ 196.90**

Comparison of Rates-Direct Trunk Transport & Entrance Facilities (DS3)

	Direct Trunk Transport			Entrance Facilities			Combined		
	Fixed	Per 10 Miles	Combined	Fixed	Per 10 Mile	Combined	Fixed	Per 10 Mile	Combined
Arizona Proposed	$ 200.35	$ 187.80	$ 388.15	$ 458.53		$ 458.53	$ 658.88	$ 187.80	**$ 846.68**
Arizona HAI	$ 1,748.71		$ 1,748.71			$ -	$ 1,748.71	$ -	**$ 1,748.71**
Arizona CLEC Proposal	$ 142.69	$ 137.00	$ 279.69		$ 137.00	$ 137.00	$ 142.69	$ 274.00	**$ 416.69**
Qwest States									
Arizona	$ 246.16	$ 159.00	$ 405.16	$ 357.16		$ 357.16	$ 603.32	$ 159.00	**$ 762.32**
Colorado (Note 3)	$ 256.13	$ 139.60	$ 395.73	$ 314.67		$ 314.67	$ 570.80	$ 139.60	**$ 710.40**
Idaho	$ 260.49	$ 242.40	$ 502.89	$ 367.97		$ 367.97	$ 628.46	$ 242.40	**$ 870.86**
Iowa	$ 5,328.09	$ -	$ 5,328.09	$ 396.88		$ 396.88	$ 5,724.97	$ -	**$ 5,724.97**
Minnesota	$ 2,818.20	$ -	$ 2,818.20	$ 191.50		$ 191.50	$ 3,009.70	$ -	**$ 3,009.70**
Montana	$ 237.14	$ 149.90	$ 387.04	$ 601.48		$ 601.48	$ 838.62	$ 149.90	**$ 988.52**
Nebraska	$ 158.99	$ 130.90	$ 289.89	$ 458.55		$ 458.55	$ 617.54	$ 130.90	**$ 748.44**
New Mexico	$ 299.06	$ 120.90	$ 419.96	$ 320.92		$ 320.92	$ 619.98	$ 120.90	**$ 740.88**
North Dakota	$ 290.37	$ 128.00	$ 418.37	$ 403.34		$ 403.34	$ 693.71	$ 128.00	**$ 821.71**
Oregon	$ 253.13	$ 101.90	$ 355.03	$ 363.42		$ 363.42	$ 616.55	$ 101.90	**$ 718.45**
South Dakota		No Order			No Order			No Order	
Utah	$ 236.18	$ 177.30	$ 413.48	$ 570.78		$ 570.78	$ 806.96	$ 177.30	**$ 984.26**
Washington	$ 225.41	$ 115.50	$ 340.91	$ 314.05		$ 314.05	$ 539.46	$ 115.50	**$ 654.96**
Wyoming	$ 225.62	$ 108.30	$ 333.92	$ 330.68		$ 330.68	$ 556.30	$ 108.30	**$ 664.60**
271 States									
Texas (4)	$ 417.24	$ 92.90	$ 510.14	$ 458.44		$ 458.44	$ 875.68	$ 92.90	**$ 968.58**
Kansas (4)	$ 478.64	$ 128.30	$ 606.94	$ 458.44		$ 1,296.54	$ 1,775.18	$ 586.74	**$ 2,361.92**
Oklahoma (4)	$ 822.78	$ 586.70	$ 1,409.48	$ 1,296.54		$ 1,296.54	$ 2,119.32	$ 586.70	**$ 2,706.02**
Missouri (4)	$ 1,486.67	$ 414.09	$ 1,900.76	$ 1,884.49		$ 1,884.49	$ 3,371.16	$ 414.09	**$ 3,785.25**
Arkansas (4)	$ 596.55	$ 175.10	$ 771.65	$ 458.44		$ 458.44	$ 1,054.99	$ 175.10	**$ 1,230.09**
New York	$ 911.00	$ 201.00	$ 1,112.00	$ -	$ 201.00	$ 201.00	$ 911.00	$ 402.00	**$ 1,313.00**
Massachussets	$ 996.54	$ 204.40	$ 1,200.94	$ -	$ 204.40	$ 204.40	$ 996.54	$ 408.80	**$ 1,405.34**
Pennsylvania	$ 489.55	$ 169.40	$ 658.95	$ 975.90		$ 975.90	$ 1,465.45	$ 169.40	**$ 1,634.85**

Note on High Capacity Circuit Comparison

General Description

The previous two sheets are divided into three sections. The first section (i.e. first three columns) identifies the direct trunk transport (Note 1) rates being proposed in this proceeding compared to the ordered rates adopted by commissions across the country. The second section identifies the entrance facility costs (Note 2). The final section is a combined entrance facility/direct trunk transport cost. AT&T has proposed to combine the direct trunk transport rate and the entrance facility rate into a single element. The HAI model does this combination. The Qwest models treat each facility separately. Some states have rates that are combined and others have separate rates. The chart combines entrance facilities and direct trunk transport facilities to come up with a standard comparable rate. Since most companies buy an entrance facility combined with direct trunk transport, this exhibit identifies a standard transmission configuration.

Note 1: Direct trunk transport (i.e. DTT or UDIT) is defined as the transmission path between two Qwest end offices.

Note 2: Entrance facilities (i.e. entrance facilities or E-UDIT) is defined as the transmission path between a Qwest end office and a CLEC office.

Note 3: The Colorado Commission has just issued an initial Order in the cost docket which would significantly reduce these rates.

Note 4: Rates vary by zone. The rates identified are based on 10 air miles of interoffice transport in a comparable zone. Selection of a different zone, would have minimal impact on the comparison.

ATTACHMENT D

ATTACHMENT D

Calculation of Loading Factors in HAI Model

Excerpt From the HAI Model-Exp Assignment Tab

	Total Annual Amount	Amount Assigned to Loops	Amount Assigned to Other UNEs
Other Taxes Calculation			
Total Direct Costs	$ 489,155,823	$ 377,028,970	$ 112,126,853
Total Network Operations	$ 90,162,050	$ 69,494,634	$ 20,667,416
Total General Support	$ 33,770,628	$ 26,029,548	$ 7,741,080
Total	$ 613,088,501	$ 472,553,152	$ 140,535,349
Other Taxes	$ 32,267,816	$ 24,871,219	$ 7,396,597
Total Expenses and Other Taxes	$ 645,356,317	$ 497,424,370	$ 147,931,947

Calculation of Loading Factors

Ln #				
1.	Total Direct Costs	$ 489,155,823	$ 377,028,970	$ 112,126,853
2.	Total Network Operations	$ 90,162,050	$ 69,494,634	$ 20,667,416
3.	Total General Support	$ 33,770,628	$ 26,029,548	$ 7,741,080
4.	Other Taxes	$ 32,267,816	$ 24,871,219	$ 7,396,597
5.	Network Operations as % Direct Costs	18.43%	18.43%	18.43%
6.	General Support as % Direct Costs	6.90%	6.90%	6.90%
7.	Other Taxes as % Direct Costs	6.60%	6.60%	6.60%

Use this sheet to vary the proportion of expenses assigned to loop-related network elements on the basis of lines and on the basis of direct expenses, respectively. Change only the % assigned "per line" -- the "per direct cost" will be calculated.

	Total Annual Amount assigned to loops	% to be assigned per line	% to be assigned per direct cost	Annual Amount to be assigned per line	Annual Amount to be assigned per direct cost
General Support - Loops					
Furniture - Capital Costs	$ 72,527	0%	100%	$ -	$ 72,527
Furniture - Expenses	$ 1,071,112	0%	100%	$ -	$ 1,071,112
Office Equipment - Capital Costs	$ 579,649	0%	100%	$ -	$ 579,649
Office Equipment - Expenses	$ 1,274,749	0%	100%	$ -	$ 1,274,749
General Purpose Computer - Capital Costs	$ 4,820,331	0%	100%	$ -	$ 4,820,331
General Purpose Computer - Expenses	$ 8,803,782	0%	100%	$ -	$ 8,803,782
Motor Vehicles - Capital Costs	$ 2,624,156	0%	100%	$ -	$ 2,624,156
Motor Vehicles - Expenses	$ 765,726	0%	100%	$ -	$ 765,726
Buildings - Capital Costs	$ 2,076,040	0%	100%	$ -	$ 2,076,040
Buildings - Expenses	$ 3,941,476	0%	100%	$ -	$ 3,941,476
Garage Work Eqpt. - Capital Costs	$ 0	0%	100%	$ -	$ 0
Garage Work Eqpt. - Expenses	$ -	0%	100%	$ -	$ -
Other Work Eqpt. - Capital Costs	$ 0	0%	100%	$ -	$ 0
Other Work Eqpt. - Expenses	$ -	0%	100%	$ -	$ -
Total General Support	$ 26,029,548			$ -	$ 26,029,548
Network Operations	$ 69,494,634	0%	100%	$ -	$ 69,494,634
Other Taxes	$ 24,871,219	0%	100%	$ -	$ 24,871,219
Variable Overhead	$ 51,732,135	0%	100%	$ -	$ 51,732,135
Totals	$ 120,395,401			$ -	$ 172,127,535

	0-5 lines/sq mi	5-100 lines/sq mi	100-200 lines/sq mi	200-650 lines/sq mi	650-850 lines/sq mi	850-2550 lines/sq mi	2550-5000 lines/sq mi	5000-10000 lines/sq mi	>10000 lines/sq mi	Totals
Direct Costs										
Loop-related direct costs	$ 39,597,744	$ 60,039,979	$ 10,889,800	$ 32,513,793	$ 11,597,747	$ 71,894,055	$ 89,025,004	$ 46,392,124	$ 15,078,722	$ 377,028,970
Non-Loop-related direct costs	$ 5,431,065	$ 13,665,221	$ 3,095,642	$ 10,642,688	$ 3,886,217	$ 24,202,964	$ 31,612,473	$ 14,126,798	$ 5,463,786	$ 112,126,853
Total	$ 45,028,809	$ 73,705,200	$ 13,985,442	$ 43,156,481	$ 15,483,965	$ 96,097,019	$ 120,637,477	$ 60,518,922	$ 20,542,509	$ 489,155,823
Loop Fraction	87.94%	81.46%	77.87%	75.34%	74.90%	74.81%	73.80%	76.66%	73.40%	77.08%
Network Operations	$ 1,193,800	$ 7,057,617	$ 2,425,318	$ 8,283,115	$ 3,010,595	$ 21,299,536	$ 28,478,137	$ 13,209,688	$ 5,204,244	$ 90,162,050

	Total Annual Amount	Amount Assigned to Loops	Amount Assigned to Other UNEs	
General Support - Totals				
Furniture - Capital Costs	$ 94,096	$ 72,527	$ 21,569	
Furniture - Expenses	$ 1,389,657	$ 1,071,112	$ 318,544	
Office Equipment - Capital Costs	$ 752,034	$ 579,649	$ 172,385	
Office Equipment - Expenses	$ 1,653,854	$ 1,274,749	$ 379,105	$ 13,198,023
General Purpose Computer - Capital Costs	$ 6,253,877	$ 4,820,331	$ 1,433,546	$ 20,572,605
General Purpose Computer - Expenses	$ 11,421,990	$ 8,803,782	$ 2,618,208	
Motor Vehicles - Capital Costs	$ 3,404,569	$ 2,624,156	$ 780,413	
Motor Vehicles - Expenses	$ 993,450	$ 765,726	$ 227,724	

Buildings - Capital Costs	$ 2,693,446	$ 2,076,040	$ 617,406	
Buildings - Expenses	$ 5,113,655	$ 3,941,476	$ 1,172,179	
Garage Work Eqpt. - Capital Costs	$ 0	$ 0	$ 0	
Garage Work Eqpt. - Expenses	$ -	$ -	$ -	
Other Work Eqpt. - Capital Costs	$ 0	$ 0	$ 0	
Other Work Eqpt. - Expenses	$ -	$ -	$ -	
Total General Support	$ 33,770,628	$ 26,029,548	$ 7,741,080	
Network Operations	$ 90,162,050	$ 69,494,634	$ 20,667,416	
Other Taxes Calculation				
Total Direct Costs	$ 489,155,823	$ 377,028,970	$ 112,126,853	$ 489,155,823
Total Network Operations	$ 90,162,050	$ 69,494,634	$ 20,667,416	$ 90,162,050
Total General Support	$ 33,770,628	$ 26,029,548	$ 7,741,080	$ 52,840,421
Total	$ 613,088,501	$ 472,553,152	$ 140,535,349	
Other Taxes	$ 32,267,816	$ 24,871,219	$ 7,396,597	$ 85,108,237
Total Expenses and Other Taxes	$ 645,356,317	$ 497,424,370	$ 147,931,947	
Variable Overhead Calculation				
Variable Overhead	$ 67,117,057	$ 51,732,135	$ 15,384,922	
Total Cost with Variable Overhead	712,473,374	549,156,505	163,316,869	

UNE Expense Asssignment		**Totals**
NID		
	per line cost	$ -
	per direct cost	$ 6,763,198
	total	$ 6,763,198
Distribution (DLC)		
	per line cost	$ -
	per direct cost	$ 76,320,638
	total	$ 76,320,638
Distribution (non-DLC)		
	per line cost	$ -
	per direct cost	$ 20,515,072
	total	$ 20,515,072
Concentrator (DLC)		
	per line cost	$ -
	per direct cost	$ 50,921,289
	total	$ 50,921,289
Concentrator (non-DLC)		
	per line cost	$ -
	per direct cost	$ 1,008,130
	total	$ 1,008,130
Feeder (DLC)		
	per line cost	$ -
	per direct cost	$ 10,930,037
	total	$ 10,930,037
Feeder (non-DLC)		
	per line cost	$ -
	per direct cost	$ 5,669,171
	total	$ 5,669,171

End Office Switching	$	109,816,150
Signaling	$	2,783,204
Dedicated Transport	$	8,530,338
Dedicated Transport Transmission	$	15,244,876
Direct Transport	$	4,541,170
Direct Transport Transmission	$	7,103,265
Common Transport	$	1,266,727
Common Transport Transmission	$	1,613,723
Tandem Switching	$	1,776,737
Operator Systems	$	5,933,641
Public Telephone	$	4,707,039

ATTACHMENT E

ATTACHMENT E
EXCERPTS FROM COLORADO PRICING LIST

		FINAL Rates	
		Recurring	Nonrecurring
Virtual Connections (Connections only; No Cables)			
DS0 (Per 100 Connections)			$222.61
DS1 (Per 28 Connections)			$101.53
DS3 (Per 1 Connection)			$8.78
Cable Hole (if Applicable)			$447.70
CLEC to CLEC Cross-Connection			$254.77
9.0 Unbundled Network Elements (UNEs)			
Interconnection Tie Pairs (ITP) – Per Termination			
DS0		Rate element not necessary	
DS1			
DS3			
Unbundled Loops			
Analog Loops			
2-Wire Voice Grade and 2-Wire Non-Loaded			
Zone 1		$8.76	
Zone 2		$14.45	
Zone 3		$37.73	
CO Multiplexing		$2.06	
4-Wire Voice Grade and 4-Wire Non-Loaded			
Zone 1		$17.52	
Zone 2		$28.90	
Zone 3		$75.46	
CO Multiplexing		$4.12	
Cable Unloading/Bridge Tap Removal			
First Splice Location			$85.00
Each Additional Splice Location			$50.00
Digital Capable Loops			
Basic Rate ISDN Capable Loop			
Zone 1		$8.76	
Zone 2		$14.45	
Zone 3		$37.73	
DS1 Capable Loop			
Zone 1		$54.38	
Zone 2		$54.71	
Zone 3		$62.80	
HDSL 4 Wire (DS1) - Equipment Loop		$54.71	
DS3 Capable Loop			
Zone 1		$595.01	
Zone 2		$603.40	
Zone 3		$798.32	
2-Wire Extension Technology		$14.45	
Analog & DS0	Loop Installation Charges		
Basic Installation			
First Loop			$87.74
Each Additional Loop			$75.59
Basic Installation with Cooperative Testing			
First Loop			$189.62
Each Additional Loop			$136.13
Coordinated Installation without Cooperative Testing			
First Loop			$94.78
Each Additional Analog Loop			$82.64
Basic Installation with Performance Testing			
First Loop			$189.62
Each Additional Loop			$136.13
Coordinated Installation with Cooperative Testing			
First Loop			$229.33
Each Additional Loop			$136.13

ATTACHMENT E
EXCERPTS FROM COLORADO PRICING LIST

	FINAL Rates Recurring	Nonrecurring
DS1 Loop Installation Charges		
Basic Installation		
First Loop		$154.79
Each Additional Loop		$124.42
Basic Installation with Performance Testing		
First Loop		$313.13
Each Additional Loop		$241.92
Coordinated Installation with Cooperative Testing		
First Loop		$352.84
Each Additional Analog Loop		$262.04
Coordinated Installation without Cooperative Testing		
First Loop		$163.84
Each Additional Loop		$133.48
DS3 Loop Installation Charges		
Basic Installation		
First Loop		$154.79
Each Additional Loop		$124.42
Basic Installation with Performance Testing		
First Loop		$313.13
Each Additional Loop		$241.92
Coordinated Installation with Cooperative Testing		
First Loop		$352.84
Each Additional Analog Loop		$262.04
Coordinated Installation without Cooperative Testing		
First Loop		$163.84
Each Additional Loop		$133.48
Subloop		
2-Wire Distribution Loop		$120.67
Zone 1	$4.54	
Zone 2	$8.73	
Zone 3	$26.08	
Zone 4		
4-Wire Distribution Loop		
Zone 1	$5.90	
Zone 2	$11.35	
Zone 3	$33.90	
Zone 4		
2-Wire Feeder Loop		$120.67
Zone 1	$1.20	
Zone 2	$1.59	
Zone 3	$5.23	
2-Wire Loop Concentration		
Zone 1	$2.52	
Zone 2	$3.52	
Zone 3	$5.74	
Installation for Each Additional 2-Wire Distribution Loop		$55.16
Building Cable	$0.78	
DS1 Capable Feeder Loop		$328.22
Zone 1	$48.16	
Zone 2	$48.47	
Zone 3	$56.56	
DS1 Each Additional Capable Feeder Loop		$257.60
Field Connection Point		
Feasibility Fee/Quote Preparation Fee		$1,107.09
Construction Fee		ICB

ATTACHMENT E
EXCERPTS FROM COLORADO PRICING LIST

	FINAL Rates Recurring	Nonrecurring
ICNAM, Per Query	$0.002149	
Construction Charges		ICB
Miscellaneous Elements		
Additional Engineering – Basic		$31.77
Additional Engineering – Overtime		$39.29
Additional Labor Installation – Overtime		$9.03
Additional Labor Installation – Premium		$18.06
Additional Labor Other – Basic		$27.69
Additional Labor Other – Overtime		$36.98
Additional Labor Other – Premium		$46.29
Testing and Maintenance – Basic		$29.42
Testing and Maintenance – Overtime		$29.29
Testing and Maintenance – Premium		$49.16
Maintenance of Service – Basic		$27.69
Maintenance of Service – Overtime		$36.98
Maintenance of Service – Premium		$46.29
Additional COOP Acceptance Testing – Basic		$29.42
Additional COOP Acceptance Testing – Overtime		$39.29
Additional COOP Acceptance Testing – Premium		$49.16
NonScheduled COOP Testing - Basic		$29.42
NonScheduled COOP Testing – Overtime		$39.29
NonScheduled COOP Testing – Premium		$49.16
NonScheduled Manual Testing – Basic		$29.42
NonScheduled Manual Testing – Overtime		$39.29
NonScheduled Manual Testing – Premium		$49.16
Cooperative Scheduled Testing – Loss		$0.08
Cooperative Scheduled Testing – C-Message Noise		$0.08
Cooperative Scheduled Testing – Balance		$0.33
Cooperative Scheduled Testing – Gain Slope		$0.08
Cooperative Scheduled Testing – C-Notched Noise		$0.08
Manual Scheduled Testing – Loss		$0.17
Manual Scheduled Testing – C-Message Noise		$0.17
Manual Scheduled Testing – Balance		$0.66
Manual Scheduled Testing – Gain Slope		$0.17
Manual Scheduled Testing – C-Notched Noise		$0.17
Additional Dispatch		$84.40
Date Change		$10.38
Design Change		$73.93
Expedite Charge		ICB
Cancellation Charge		ICB
Channel Regeneration		
DS1 Regeneration	$2.32	$477.52
DS3 Regeneration	$7.34	$1,806.53
UNE Platform	Note: Conditions on Charges	
UNE-P Conversion		
UNE-P POTS, CENTREX, PAL, PBX Mechanized		
First		$0.68
Each Additional		$0.14
UNE-P Migration		
UNE-P Disconnect		
UNE-P POTS, CENTREX, PAL, PBX Manual		
First		$16.25
Each Additional		$2.71
UNE-P Migration		
UNE-P Disconnect		
UNE-P PBX DID Trunk, Existing Service		
First		$20.66
Each Additional		$3.13
UNE-P Migration		
UNE-P Disconnect		